National Nuclear Security Administration

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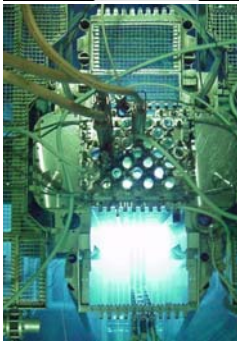

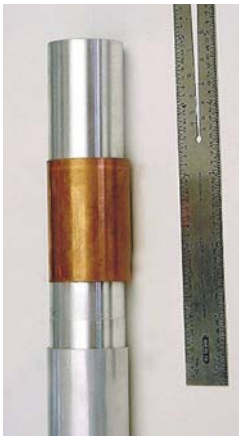

2005 RERTR International Meeting on Reduced Enrichment for Research and Test Reactors

November 6-11, 2005

Boston, Massachusetts

Final Program

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ARGONNE NATIONAL LABORATORY

RERTR-2005 International Meeting on Reduced Enrichment for Research and Test Reactors
Boston, United States, November 6-11, 2005

PROGRAM

Sunday 5:00 pm - Registration; 6:00 pm - 9:00 pm - Reception

Session	Session Title	Time		Paper Title	Authors
Monday					
	Welcome	**8:00 a.m.**		Welcome	
1	**Opening Remarks**			Overview of GTRI Strategic Policy	A. Bieniawski
				Opening Remarks - IAEA	H. Forström
2	**Reduced Enrichment and Repatriation Programs**	**8:40 a.m.**	1	The RERTR Program: Status and Current Plans	P. Staples
	Co-chairs: J. Roglans, P. Adelfang		2	Latest IAEA Activities Related to Research Reactor Fuel Conversion and Spent Fuel Return Programs	P. Adelfang
			3	Progress on RERTR Activities in Argentina	H. Taboada, S. Balart, N. Boero, O. Calzetta, A. Gauna, J. Hermida, A. Manzini, and E. Pasqualini
				Break	
2 Cont'd		**10:20 a.m.**	4	Status of Reduced Enrichment Program for Research Reactors in Japan	Y. Nakagome, H. Unesaki, and H. Sagawa
			5	South Africa and the SAFARI-1 Scenario: On The Road to Conversion - from HEU to LEU	C. Piani
			6	The United States Foreign Research Reactor Spent Nuclear Fuel Acceptance Program: Program Continuation and Current Initiatives	C. Messick and J. Taylor
			7	RRRFR Program	I. Bolshinsky
				Lunch RERTR-2005 Hosted	
3	**Related Programs**	**1:00 p.m.**	1	Filling the Gaps	P. Khalsa
	Co-chairs: C. Messick, T. Andes		2	Disposition Options for GAP Materials	J. Dewes
			3	Global Research Reactor Security Program	P. Robinson
4	**Reactor Conversion Experience**	**2:00 p.m.**	1	Safety Re-evaluation and Relicensing of the HFR Petten	F. Wijtsma
	Co-chairs: J. Matos, I. Bolshinsky		2	Sparrow Flies Lower	R. Skoda
			3	Criticality Calculations and Transient Analyses for the VR-1 Reactor with IRT-4M LEU Fuel Assemblies	J. Rataj
			4	The First Critical Experiment with a LEU Russian Fuel IRT-4M at the Training Reactor VR-1	L. Sklenka and K. Matejka
				Break	
5	**Fuel Development Programs**	**3:45 p.m.**	1	Status and Progress of the U.S. RERTR Fuel Development Program	M. Meyer
	Co-chairs: J. Snelgrove, H. Taboada		2	Main Results of the Development of LEU Fuel for Russian Research Reactors	A. Vatulin, I. Dobrikova, A. Morozov, and V. Suprun
			3	Staus of the French CEA Program for the Development and the Qualification of High Density Fuel for the JHR Project	P. Lemoine
5:00 p.m. Adjourn					
Tuesday					
6	**U-Mo Fuel Development and Testing - Part 1**	**8:00 a.m.**	1	Irradiation Testing of High Density U-Mo Fuels in the ATR	D. Wachs, G. Chang, R. Ambrosek, and M. Meyer
	Co-chairs: P. Lemoine, R. Finlay		2	Results of Post Irradiation Examinations of Pin Type Low Enriched U-Mo Mini Fuel Elements	A. Izhutov, A. Novosyolov, V. Shishin, V. Alexandrov, N. Gataulin, V. Starkov, G. Shevlyakov, V. Yakovlev, and A. Sheldyakov and I. Dobrikova, A. Vatulin, G. Kulakov, and A. Morozov
			3	Progress of KOMO-3 Irradiation Test for Various U-Mo Dispersion and Monolithic Fuel to Overcome Interaction Problem in U-Mo/Al Dispersion Fuel	C. Kim, K. Kim, J. Park, H. Ryu, Y. Lee, D. Lee, S. Oh, H. Chae, C. Seo, and C. Lee
			4	Test of Pin Fuel in WWW-M Reactor	A. Zakharov, G. Kirsanov, K. Konoplev, and A. Morozov
				Break	
7	**U.S. Reactor Conversion**	**10:00 a.m.**	1	Domestic Reactor Conversions Program Overview and Status	D. Meyer and J. Wade
	Co-chairs: W. Richards, S. Sampong		2	Florida	B. Dionne
			3	HEU to LEU Conversion Analysis of the Texas A&M TRIGA Reactor	J. Bolin, W. Whittemore, C. Ellis, H. Yi, A. Veca
			4	Advanced Test Reactor LEU Fuel Conversion Feasibility Study	G. Chang and R. Ambrosek
			5	Overview of High Flux Isotope Reactor Design Bases Relevant to Possible Conversion to Low-enriched Uranium	R. Primm III, D. Moses, J. Gehin, R. Ellis, and J. Binder
				Lunch RERTR-2005 Hosted	

Session	Session Title	Time		Paper Title	Authors
8	**Mo-99 Production**	**1:00 p.m.**	1	Facts and Myths Concerning ^{99}Mo Production with HEU and LEU Targets	G. Vandegrift
	Co-chairs: P. Staples, G. Ball		2	The Radiopharmaceutical Industry's Effort to Migrate Towards Mo-99 Production Utilizing LEU	R. Brown
			3	Radionuclide Purity of Fission Mo-99 Produced from LEU and HEU: A Comparative Study	A. Duran
			4	Weaker U.S. Export Controls on Bomb-Grade Uranium: Causes, Consequences, Prospects	A. Kuperman
			5	Progress in Technology Development for Conversion of ^{99}Mo Production - Batan's (Indonesia) Conversion program and Development of Inorganic Sorbents for ^{99}Mo Production	A. Bakel, D. Stepinski, G. Vandegrift, A. Leyva, A. Gelis, A. Bond, and H. Mayes
			6	The IAEA Coordinated Research Project on Molybdenum-99 Production Using LEU or Neutron Activation	I. Goldman and P. Adelfang
				Break	
9	**Program Extensions**	**3:45 p.m.**	1	The RERTR Current Scope of Work for Reactor Conversions	C. Landers
	Co-chairs: C. Piani, J. Matos		2	About the Enrichment Limit for Research Reactor Conversion: Why 20%?	A. Glaser
			3	Future Needs for HEU-fueled Critical Assemblies	F. Von Hippel
			4	Assessment of Feasibility of Converting Russian Icebreaker KLT-40 Reactors from HEU to LEU Fuel	A. Dmitriev, A. Diakov, and A. Shuvaev
5:00 p.m. Adjourn					
Wednesday					
10	**Reactor Conversion Analysis - Part 1**	**8:00 a.m.**	1	The Feasibility Study of LEU Fuel for Miniature Neutron Source Reactor	L. Yiguo and X. Pu
	Co-chairs: I. Goldman, D. Chong		2	Feasibility Study of Potential LEU Fuels for a Generic MNSR Reactor	J. Matos and R. Lell
			3	The Use of UAl_x-Al Reduced Enrichment Fuel in a Well Reflected MNSR	M. Albarhoum
			4	Current Status of the Nigeria Research Reactor-1 (NIRR-1) and Feasibility for Conversion to LEU	S. Jonah and G. Balogun
				Break	
10 Cont'd		**9:50 a.m.**	5	Monte Carlo Simulation of Irradiation Channels of the HEU-fueled GHARR-1 Facility	S. Anim-Sampong, B. Maakuu, E. Akaho, and B. Nyarko
			6	Enhancement of Pakistan Research Reactor-2 Reactivity by Beryllium Shim Plate Addition and Comparison of Pre-shimming and Post-shimming Reactor Operation Data	M. Abdullah
11	**Reactor Conversion Analysis - Part 2**	**10:40 a.m.**	1	Comparative Analysis for Loading LEU Instead of HEU Fuel Assemblies in the Dalat Nuclear Research Reactor	V. Le, T. Huynh, B. Luong, and V. Pham and J. Liaw and J. Matos
	Co-chairs: J. Marques, N. Hanan		2	Feasibility Analysis for Conversion of the WWR-K Reactor Using a Tube-type Uranium Dioxide Fuel Assembly	F. Arinkin, P. Chakrov, L. Chekushina, I. Dobrikova, Sh. Gizatulin, K. Kadyrzhanov, S. Koltochnik, V. Nasonov, A. Taliev, A. Vatulin, Zh. Zhotabaev, and N. Hanan
			3	Completion of the Safety Analysis for the WWR-M Reactor in Ukraine to Allow Operation Using LEU Fuel	Y. Mahlers and A. Dyakov
				Lunch No Host	
12	**Poster Session**	**1:00 - 2:00 p.m.**	1	RERTR Program Cooperation with the IAEA Technical Cooperation Program	D. Chong
			2	Lessons from the Atoms-for-Peace Research Reactor Fuels Program, 1955-1965	S. Zinkle, D. Moses, T. Huxford, and J. Binder
			3	Under Irradiation Qualification of a Chilean Test Fuel	J. Marin, J. Lisboa, and L. Olivares
			4	Effect of Reaction Phase Growth on the Irradiation Performance of Rod-type U-Mo/Al Dispersion Fuel	H.J. Ryu, J. Park, H. Chae, C. Kim, Y. Kim, and G. Hofman
			5	Analysis of Factors Affecting the Formation of Porosity and Bulges in U-Mo Fuel	A. Savchenko, A. Vatulin, I. Dobrikova, G. Kulakov, S. Ershov, Y. Konovalov
			6	First Principles Calculations of Lattice Parameter and Elastic Constant of BCC Gamma(U, Mo) Disordered Phase	P. Gargano, P. Alonso, H. Mosca, J. Rios, M. Albuixech, and G. Rubiolo
			7	Monolithic Fuel Plates Diffusion Bonded by Electro-consolidation	I. Prokofiev
			8	Calculation Studies on Conversion to Low Enriched Fuel of Research Reactor in Libya	V. Lukichev, V. Aden, E. Kartashev, …,S. Sokolov, and V. Nikitin
			9	Using Low-Enriched Uranium in the VNIIIEF Pulsed Reactors	A. Dubinin
			10	Study on Usage of Low Enriched Uranium Russian Type Fuel Elements for Design of an Experimental ADS Research Reactor	M. Pesic
			11	Progress Achieved for the Full Conversion - from HEU to LEU - of the TRIGA 14 MV Research Reactor Core at Pitesti, Romania	A. Atger, L. Biro, I. Bolshinsky, M. Ciocanescu, and J. Falgoux

Session	Session Title	Time		Paper Title	Authors
13	**U-Mo Fuel Development and Testing - Part 2**	**2:00 p.m.**	1	Observations of the Nucleation and Evolution of Porosity in U-Mo Fuels	G. Hofman and M. Finlay
	Co-chairs: A. Izhutov, E. Pasqualini		2	Out-of-Pile Diffusion Studies Between U-7wt%Mo and Al-Si Alloys	M. Mirandou, S. Arico, L. Gribaudo, and S. Balart
			3	Phase Stability and Diffusion Characteristics of U-Mo-X (X=Si, Al, Zr or Ti) Alloys	J. Park, H. Ryu, G. Lee, H. Kim Y. Lee, C. Kim, and Y. Kim and G. Hofman
			4	Study of UMo/Al Interaction Layer by XRD and XAS with Micro-Focused X-Ray Beam	H. Palancher, P. Martin, M. Ripert, S. Dubois, and C. Valot, and C. Proyne and F. Mazaudier
				Break	
14	**U-Mo Fuel Development and Testing - Part 3**	**4:00 p.m.**	1	Heavy Ion Irradiation of U-Mo/Al Dispersion Fuel	N. Wieschalla, A. Bergmaier, P. Bonib, K. Boning, G. Dollinger, R. Grossmann, W. Petry, A. Rohrmoser, and J. Schneider
	Co-chairs: C. Clark, D. Sears		2	Effects of Additives in the Al Interdiffusion Behavior in UMo Based Fuels	J. Garces, G. Bozzolo, G. Hofman, and J. Rest
			3	Thermodynamic and Metallurgical Considerations to Stabilizing the Interaction Layers of U-Mo/Al Dispersion Fuel	Y. Kim
			4	Main Interactions in the Formation Energy of BCC Gamma (U,Mo) Disordered Phase	P. Alonso and G. Rubiolo
5:30 p.m. Adjourn					
				Banquet - 7:00 p.m.	
Thursday					
15	**Fuel Fabrication**	**8:00 a.m.**	1	Update on Monolithic Fuel Fabrication Development	C. Clark, J. Wight, G. Knighton, G, Moore, and J. Jue
	Co-chairs: M. Meyer, C. Kim		2	Monolithic U-Mo Full Size Prototype Plates Manufacturing Development	C. Jarousse, P. Lemoine, W. Petry, and A. Rohrmoser
			3	Dispersed (Coated Particles) and Monolithic (Zircalloy-4 Cladding) UMo Miniplates	E. Pasqualini
			4	Recent Developments of Magnesium Matrix Fuel Plates	T. Wiencek
			5	BWXT Commercialization Activities for GTRI LEU U-Mo Fuels	M. Nilles
				Break	
16	**Reactor Conversion Analysis - Part 3**	**10:20 a.m.**	1	Core Conversion of the Portuguese Research Reactor: An Operator's Perspective	J. Marques et al.
	Co-chairs: Y. Mahlers, L. Sklenka		2	Neutronic Parameters of Tajoura Research Reactor Fueled with HEU and LEU	O. Abulgasem, F. Abuatweirat, and A. Ajaj
			3	Progress in Conversion from HEU to LEU Fuel at IRT-200, Sofia	T. Apostolov, S. Belousov, P. Egorenkov, and J. Deen, N. Hanan, and J. Matos
			4	Comparative Study of the WWR-K Reactor Using Low Enriched U-Mo Fuel Pin- and Tube-Type Assemblies	F. Arinkin, P. Chakrov, L. Chekushina, I. Dobrikova, Sh. Gizatulin, K. Kadyrzhanov, S. Koltochnik. V. Nasonov, A. Taliev, A. Vatulin, Zh. Zhotabaev
				Lunch RERTR-2005 Hosted	
17	**Spent Fuel Management**	**1:00 p.m.**	1	Successful Removal of More Than 200 Spent HEU Fuel Assemblies from the High Flux Reactor at Petten	C. Anne, F. Wijtsma, F. de Smedt, and A. Gevers
	Co-chairs: C. Messick, P. Gubel		2	Options for the Management of Spent Fuel from Research Reactors in Latin American Countries - A Report from the IAEA Technical Cooperation Regional Project RLA/4/018	A. Bevilacqua, O. Novara, A. Soares, J. Klein, R. Mazon, I. Llamas, and P. Adelfang
			3	Containment Evaluation of Breached AL-SNF for Cask Transport	D. Vinson, R. Sindelar, and N. Iyer
				Break	
	Summary and Closure	**2:30 p.m.**			
4:00 - Adjourn					

Friday, 9:00 - 11:00 a.m. Tour of MIT Reactor Laboratory - up to 35 participants

On behalf of the U.S. Department of Energy/National Nuclear Security Administration's Office of Global Nuclear Material Threat Reduction, and in cooperation with the International Atomic Energy Agency (IAEA), Argonne National Laboratory is organizing the "RERTR 2005 International Meeting on Reduced Enrichment for Research and Test Reactors" in Boston, Massachusetts, USA from November 6-11, 2005. This will be the 27th annual meeting in a series on the same general subject regarding the Reduced Enrichment for Research and Test Reactors (RERTR) program.

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The following companies and organizations have made generous financial contributions to the success of the 2005 RERTR Meeting. Their support is greatly appreciated.

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